Addendum to FormsMaster 8000 Programmer's Manual

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IMPORTANT NOTICE FOR FIELD FIRMWARE UPGRADE!

When upgrading your FM8000 printer in the field to version v021 firmware, you must first initialize the non-volatile memory to support new features. If you received your printer new with version v021 firmware, initialization is not required.

This initialization will result in the loss of any settings you have set in the OPTIONS menu and in the INTERFACE menu, so it is a good idea to print your current settings first. See you Users Manual for instructions on how to print your current settings. Only settings under the OPTIONS menu and INTERFACE menu are affected. Forms setups and print adjustments will not be changed.

To initialize non-volatile memory:

1) Turn printer off.
2) While holding the SETUP/MENU and ITEM -> keys at the same time, turn on power.
3) When the print head begins to move, you can release the keys. Wait until the initialization sequence completes and the printer goes online.
4) Press ON LINE to go offline.
5) Press SETUP/MENU to enter Setup mode, then press SETUP/MENU four (4) more times until the [SECURITY MENU] is displayed.
6) Press the ITEM -> key three (3) times until [Interface Menu] is displayed.
7) Press the VALUE -> key to select [Initialize].
8) Press the ITEM -> key one more time to display the [Options Menu].
9) Press the VALUE -> key to select [Initialize].
10) Press ON LINE to exit Setup Mode and initialize the non-volatile memory.

Now set any features under the OPTIONS MENU and the INTERFACE MENU that may have been reset, referring to your current settings printout.

Using the printer without performing this operation could result in erratic behavior!

Selecting Genicom 3840 or 3410 ANSI Emulation

In the FM8000, separate emulation modes can be selected for each interface (Serial, Parallel, or LAN). Make sure to set the Genicom 3840 or 3410 emulation mode for the interface you are using.

From the FM8000 front panel:

1) Take the printer offline by pressing ONLINE.
2) Press SETUP to enter setup mode.
3) Press SETUP again to select the INTERFACE MENU.
4) Press SUB-MENU to select the interface you are using.
5) Press ITEM to select EMULATION.
6) Press VALUE until GENICOM 3840 or GENICOM 3410 appears.
7) Press ONLINE to exit setup mode and save changes.

Selecting DEC LA210 Emulation

The FM8000 DEC LA210 Emulation now appears in the interface memories as DEC LA120/210. This emulation now supports DEC LA210 positioning commands and graphs (see page 2).

Vertical Position

Partial Line Down **PLD**
(or) **ESC K**

Performs a half line feed at 6 lpi, or 1/12", regardless of the current lpi setting. To prevent loss of top of form, this half line feed down must be countered with a half line feed up (PLU) before reaching the next page.

Control code:	PLD	
Hexadecimal:	8B	
Escape Sequence:	ESC	K
Hexadecimal:	1B	4B

Partial Line Up **PLU**
(or) **ESC L**

Performs a reverse half line feed at 6 lpi, or 1/12", regardless of the current lpi setting. To prevent loss of top of form, this half line up must be countered with a half line feed down (PLD) before reaching the next page.

Control code:	PLU	
Hexadecimal:	8C	
Escape Sequence:	ESC	L
Hexadecimal:	1B	4C

Reverse Index **ESC M**

Performs a reverse line feed at the current lpi. The next line printed will be above the previous line.

Escape Sequence:	ESC	M
Hexadecimal:	1B	4D

Reverse Line Feeds **ESC [(n) A**

Performs (n) reverse line feeds at the current lpi. Not that backing up beyond the top of a continuous fan fold form may cause paper jams.

Example: The following escape sequence will back up the paper by 33 lines.

Escape Sequence:	ESC	[	3	3	A
Hexadecimal:	1B	4D	33	33	41

Graphics

Graphics mode gives the user complete control over every dot position on the paper. Graphics may be printed with 132 dpi horizontal density and 72 dpi vertical density.

Each byte of graphics data represents a vertical column of six dots, with the LSB (least significant bit) corresponding to the top wire of the print head. Turning a bit on causes a dot to be printed. Graphics bytes are encoded in the characters '?' (hexidecimal 3F) through 'DEL' (hexidecimal 7F). The graphics encoded characters are offset by the value 3F, so the bit values corresponding to each wire of the print head are shown below:

wire 1 (top)	'@'	(40 hex - 3F hex = 1)
wire 2	'A'	(41 hex)
wire 3	'C'	(43 hex)
wire 4	'G'	(47 hex)
wire 5	'O'	(4F hex)
wire 6	'_'	(5F hex)

The appropriate bit values are added together to fire the appropriate wires. For example, the character 'P' (50 hex - 3F hex = 11 hex) will fire the top wire, wire 1, and the fifth wire, wire 5.

Each graphics sequence contains any number of bytes followed by the terminating sequence ESC \ (hexadecimal 1B 5C).

Escape Sequence:	ESC	P	q	data	data ...	ESC	\
Hexadecimal:	1B	51	71	(3F - 7F)		1B	5C

When printing graphics lines, the effective line pitch is 12 lpi. To make successive strips of a graphics image to align correctly, this lpi should be set prior to the carriage return after printing the first graphics line. The escape sequence ESC [3 z will accomplish this. Make sure to set the lpi back to your previous setting prior to the carriage return following the last line of graphics. For example, when printing text at 6 lpi and printing three lines of graphics:

ESC P q (data) ESC \ ESC [3 z (return)	prints graphics and does 1/12" line feed.
ESC P q (data) ESC \ (return)	prints graphics and does 1/12" line feed.
ESC P q (data) ESC \ ESC [0 z (return)	prints graphics and does 1/6" line feed.

Note that graphics mode must be exited before issuing any escape sequence, or carriage returns and line feeds.

Control Codes and Escape Sequences Sorted Alphabetically

Code	Description	Page #
BEL	Bell	5
BS	Backspace	5
CR	Carriage Return	5
CSI	Control Sequence Introducer	5
ESC D	Line Feed	5
ESC E	New Line	5 and 6
ESC ESC n	Select Software Interface n	6
ESC H	Set Horizontal Tab	6
ESC J	Set Vertical Tab	7
ESC K	Subscript Printing	7
ESC L	Superscript Printing	7
ESC P <graphics> ESC \	6 Pin Graphics Mode	7 and 8
ESC [(p1);(p2)<SP>B	Oversize Font / Graphic Size Modification	8
ESC [(p1);(p2)<SP>G	Line / Character Spacing	8
ESC [(p)`	Horizontal Position Absolute	9
ESC [(p)a	Horizontal Position Relative	9
ESC [(p)d	Vertical Position Absolute	9
ESC [(p)e	Vertical Position Relative	9
ESC [(p1);(p2)f	Vertical and Horizontal Position Absolute	9 and 10
ESC [(Ps)g	Clear Tabs	10
ESC [(p)h	Set Auto CR on LF	10
ESC [(p)j	Horizontal Position Backwards	10
ESC [(p)k	Vertical Position Backwards	11
ESC [(p)l	Reset Auto CR on LF	11
ESC [(p1);...(pn)m	Font and Print Modes	11 and 12
ESC [(p1)p	Paper Path	12
ESC [(p1)q	Graphics Density	12
ESC [(p1);(p2);(p3)r	Forms Setup	12
ESC [(p1);(p2)s	Margins Setup	13
ESC [(p1)t	Oversized Font / Barcode Mode	13
ESC [(p1);(p2);...(p22)u	Set Horizontal Tabs at Certain Positions	13
ESC [(p1);(p2);...(p12)v	Set Vertical Tabs at Certain Positions	13
ESC [(p1);(p2)<SP>{	Paper Shear	14
ESC [(p1);(p2);...(p12)}	Set Barcode Parameter	14 and 15
ESC]6;4;(p3);(p4)ESC\	Straps and Options	15
ESC c	Reset	16
ETX	End of Text	16
FF	Form Feed	16
HT	Horizontal Tab	16
HTS	Set Horizontal Tab Stop	16
IND	Index	16
LF	Line Feed	17
NEL	Next Line	17
PLD	Partial Line Down (Subscript)	17
PLU	Partial Line Up (Superscript)	17
VT	Vertical Tab	18
VTS	Set Vertical Tab Stop	19

BEL **BEEPER**

Sounds the beeper for about ½ second.

Dec 7

Hex 07

BASIC CHR$(7);

BS **BACKSPACE**

Prints the data in the print buffer, then moves the print position one character position to the left.

Dec 8

Hex 08

BASIC CHR$(8);

CR **CARRIAGE RETURN**

Initiates printing and returns the current print position to the left margin.

Dec 13

Hex 0D

BASIC CHR$(13);

CSI **CONTROL SEQUENCE INTRODUCER**

The CSI character is the control function introducer for the ANSI control sequence. Control sequences are multi-character control functions that accept parameters.

Dec 155

Hex 9B

BASIC CHR$(155);

ESC D **LINE FEED**

Causes the current line to be printed and then advances the paper one line at the current line spacing. If "Auto CR" is set to "On" in the interface setup menu, a carriage return will also be performed.

Control code:	LF
Hexadecimal:	0A
Control code:	IND
Hexadecimal:	84
Escape Sequence:	ESC D
Hexadecimal:	1B 44

ESC E **NEW LINE**

Causes the current line to be printed, and then sets the current print position to the left margin and performs a line feed. Equivalent to a carriage return (CR) line feed (LF) combination.

Control code:	NEL
Hexadecimal:	85

Escape Sequence:	ESC	E
Hexadecimal:	1B	45

ESC ESC n **SELECT SOFTWARE INTERFACE n**

Selects the software interface n according to the table below.

n	**Software Interface**
0	Test (reserved for factory use)
1	ANSI X3.64 Emulation
2	Epson FX Emulation
3	Bar Code Mode (optional)
4	IBM Proprinter Emulation
5	DEC LA120 Emulation
6	TTY Emulation
7	Printek Emulation
;	Remote Setup Mode
<	Genicom 3840
=	Genicom 3410
?	Previously Selected Emulation
@	Default Emulation

Overrides the Emulation value in the interface setup menu.

A numeric value for n may be specified in two different ways, with equivalent results: a single byte with a value of 00 to 07 hex, or a single printable ASCII character “0” to “7” (30 to 37 hex).

If more than one emulation has been selected, ESC ESC ? will return to the previously selected emulation. This is particularly useful when the previous emulation is unknown. Please beware that the memory (stack) is only one level deep.

ESC ESC @ will return to the default emulation, as specified by the “Emulation” value in the interface setup menu.

This chapter describes ANSI X3.64 emulation. If a different interface is selected, the control codes and escape sequences described in this chapter will no longer be applicable.

Example: The following escape sequences will select Printek emulation, load form one, and then return to the previous emulation.

Escape Sequence:	ESC	ESC	7	ESC	L	1	ESC	ESC	?
Hexadecimal:	1B	1B	07	1B	4C	01	1B	1B	3F

ESC H **SET HORIZONTAL TAB**

If 8-bit control code processing is enabled then

Dec 27 72

Hex 1B 48

BASIC CHR$(27);”H”;

ESC J **SET VERTICAL TAB**

If 8-bit control code processing is enabled then

Dec 27 74

Hex 1B 4A

BASIC CHR$(27);"J";

ESC K **SUBSCRIPT PRINTING**

Moves paper ½ line below the current line for subscript printing. ESC K is also used to return to the original line following ESC L (superscript).

If 8-bit control code processing is enabled then

Dec 27 75

Hex 1B 4B

BASIC CHR$(27);"K";

ESC L **SUPERSCRIPT PRINTING**

Moves paper ½ line above the current line for superscript printing. ESC L is also used to return to the original line following ESC K (subscript).

If 8-bit control code processing is enabled then

Dec 27 76

Hex 1B 4C

BASIC CHR$(27);"L";

Example of subscript and superscript:

```
10  LPRINT  "X" ; CHR$ (27) ; "Ki" ; CHR$ (27) ; "L*Y" ;
20  LPRINT  CHR$ (27) ; "Li" ; CHR$ (27) ; "K=A"
```

NOTE: The partial line up does not respect top of form; that is, following a form feed, ESC L causes a partial line movement upward. Also, partial line down does not respect bottom of form; that is, when printing the last line on the form, ESC L causes a partial line movement downward.

CAUTION: When printing the last line on a form, do not send a line feed (LF) code to move directly from superscript to subscript. The LF code will be acted upon as the bottom of form terminator.

ESC P (graphics)
ESC ** **GRAPHICS MODE

Graphics mode gives the user complete control over every dot position on the paper. Graphics may be printed with 72 dpi horizontal density and 72 dpi vertical density only in this emulation.

Each byte of graphics data represents a vertical column of six dots, with the LSB (least significant bit) corresponding to the top wire of the print head. Turning a bit on causes a dot to be printed.
If you wanted to fire all six wires, you would send a decimal value of 63 (3F hex) (character '?').

Byte values 0 through 31 are interpreted as control codes, so you have to add the value 64 decimal to any byte value between 0 and 31:

WEIGHT	WIRE						
1	1						
2	2						
4	3						
8	4						
16	5						
32	6						
	DEC. VALUE	65	66	68	72	80	32
	CHARACTER	A	B	D	H	P	space

Each graphics sequence contains any number of bytes followed by the terminating sequence ESC \ (hexadecimal 1B 5C).

Carriage returns and line feeds are recognized control characters while in graphics mode. Note that line feeds are at 12 LPI while in graphics mode, and revert to their previous setting when graphics mode is exited. Vertical Tabs and Horizontal Tabs are not recognized by this emulation.

ESC [(p1);(p2)<SP>B

ANSI OVERSIZED FONT

Set Character Size

Sets the scaling of the oversize characters in percentage points. Pv is the vertical expansion, and Ph is the horizontal. The base font is a 10-point font. These settings are non-volatile, and should be set once before using the oversize font.

Differences from Genicom 3840 and 3410:

All Oversized Character features are supported. Expanded Mode is not supported in this printer.

Software Options That Affect Oversized Printing

Software Options are selected under the FM8000's front panel Setup feature. These settings are non-volatile. One of these options affects Oversized Mode:

OPTIONS MENU Item — Description

Top of Oversized — On / Off

When enabled, the vertical position on exiting oversized mode places the text baseline for subsequent printing so the top of the next character printed will align with the top of the oversized character cell.
When disabled, the paper advances 1/8 inch on exiting oversized mode.

ESC [(p1);(p2)<SP>G

LINE/CHARACTER SPACING

Sets the vertical and horizontal pitch in decipoints. Parameter (p1) is the spacing between lines and (p2) is the spacing between characters. Unspecified parameters remain at their current values. This command does not affect oversized printing selected by ESC [1t.

ESC [(p)' **HORIZONTAL POSITION ABSOLUTE**

Causes the print position to move (in decipoints) a specified distance from the left print reference.

Example: ESC [360'

Dec	27	91	49	48	56	48	106
Hex	1B	5B	31	30	38	30	6A

BASIC CHR$(27);"[1080j";

ESC [(p)a **HORIZONTAL POSITION RELATIVE**

Advances the current print position by the distance specified. Parameter p is specified in decipoints (720 decipoints = 1 inch).

Example: ESC [1080a advances the print position 1.5 inches.

Dec	27	91	49	48	56	48	97
Hex	1B	5B	31	30	38	30	61

BASIC CHR$(27);"[1080a";

ESC [(p)d **VERTICAL POSITION ABSOLUTE**

Moves the current print position to p decipoints from the top of the form.

The following example advances the paper to 2 inches below top of form.

Example: ESC [1440d

Dec	27	91	49	52	52	48	100
Hex	1B	5B	31	34	34	30	64

BASIC CHR$(27);"[1440d";

ESC [(p)e **VERTICAL POSITION RELATIVE**

Advances paper p decipoints. This command enables printing below the bottom margin of the current form and above the top margin of the following form. The example below advances the paper 4 ¼ inches.

Example: ESC [3060e

Dec	27	91	51	48	54	48	101
Hex	1B	5B	33	30	36	30	65

BASIC CHR$(27);"[3060e";

ESC [(p1);(p2)f **VERTICAL AND HORIZONTAL POSITION ABSOLUTE**

Moves the print position to any coordinate on the page. Coordinates are measured in decipoints. Parameter p1 is the vertical coordinate, which is measured from the top print reference. Parameter p2 is the horizontal coordinate, which is measured from the left print reference. The computation of absolute positions is not influenced by margin settings. Top and left print references are adjustable from the control panel.

You can print characters beyond the left, top, and bottom margin setting, but no printing is allowed beyond the right margin.

EXAMPLE: ESC [1440;2160f

Prints the next character 2 inches from the top print reference and 3 inches from the left print reference.

Dec	27	91	49	52	52	48	59	50	49	54	48	102
Hex	1B	5B	31	34	34	30	3B	32	31	36	30	66

BASIC CHR$(27);"[1440;2160f";

ESC [(Ps)g **CLEAR TABS**

Ps	**effect**
0	clear horizontal tab at current print position
1	clear vertical tab at current position
3	clear all horizontal tabs
4	clear all vertical tabs

Example: Clear all horizontal tabs

Dec	27	91	51	103
Hex	1B	5B	33	67

BASIC CHR$(27);"[3g";

ESC [(p)h **SET AUTO CR ON LF**

P	**effect**
20	auto CR on LF

Dec	27	91	50	48	104
Hex	1B	5B	32	30	68

BASIC CHR$(27);"[20h";

ESC [(p)j **HORIZONTAL POSITION BACKWARDS**

Moves the horizontal position (p) decipoints left of the current position.

Actual distance between symbols separated by this command is the argument (p) minus the current horizontal pitch (text of graphics). For example, if you print an uppercase E at 10 cpi, move backwards by (p), and print another uppercase E, then the distance between leading edges of the two characters is (p) – 72 decipoints. If you print graphics at 72 dpi, move backwards by p, and print another graphics column, then the distance between the two graphics columns is (p) – 10 decipoints.

This command enables printing left of the left margin. Any data located left of the left print reference is discarded.

Example: ESC [1080j moves the horizontal position back by 1.5 inches.

Dec	27	91	49	48	56	48	106
Hex	1B	5B	31	30	38	30	6A

BASIC CHR$(27);"[1080j";

ESC [(p)k **VERTICAL POSITION BACKWARDS**

Moves the vertical position backwards to (p) decipoints above the current position. The horizontal position does not change.

If the target position is above the top margin, then the vertical position is the top margin. If no top margin is set, and the target position is above top-of-form, then the vertical position is top-of-form.

Note: The printer economizes vertical motion with vertical logic seeking, so this command may cause reverse paper motion in some instances and not in others. Reverse paper motion can cause problems with some forms.

Example: ESC [1080k moves the vertical position up by 1.5 inches.

Dec 27 91 49 48 56 48 107

Hex 1B 5B 31 30 38 30 6B

BASIC CHR$(27);"[1440d";

ESC [(p)l **RESET AUTO CR ON LF**

Resets mode set by ESC [20h.

Example: reset auto CR on LF

Dec 27 91 50 48 108

Hex 1B 5B 32 30 6C

BASIC CHR$(27);"[201";

ESC [(p1);…(pn)m **FONT AND PRINT MODES**

Selects print modes and fonts.

P1	Printing Mode
0	normal printing – resets all modes
1	set bold print
4	set underline
5	set doublewide
10 and 11	DP
12	LQ
13	DP
14	LQ
15	Italic DP
16	Italic LQ
17	Italic DP
18	Italic LQ
19	Wide DP
22	cancel bold
24	cancel underline
25	cancel doublewide

Example: set bold print

Dec 27 91 49 109

Hex 1B 5B 31 6D

BASIC CHR$(27);"[1m";

ESC [(p1)p **PAPER PATH**

p1	selects
10	unload current path and load rear path
12	unload current path and load front path
14	unload current path and load middle path

If you send a command to change paper paths and the target path is the current path, then the printer executes a form feed.

Example: Unload the front path and load the rear path:

Dec 27 91 49 48 112

Hex 1B 5B 31 30 70

BASIC CHR$(27);"[10p";

ESC [(p1)q **GRAPHICS DENSITY**

Sets the graphics density. The printer powers up with a graphics density of 72 x 72 dpi; changes are not stored in NVRAM.

p1	horizontal density	vertical density
0	72 dpi	72 dpi
1	144 dpi	72 dpi

Dec 27 91 48 113

Hex 1B 5B 30 71

BASIC CHR$(23);"[0q";

ESC [(p1);(p2);(p3)r **FORMS SETUP**

Sets top of form and sets form length, as well as top and bottom margins, in decipoints. Parameter p1 is form length, p2 is the top margin, and p3 sets the length of white space between the baseline of the last allowed line and the end of the form. Any parameter not specified is assigned its default value. Maximum form length is 15840 decipoints (22 inches).

DEFAULT VALUES

p1	7920 decipoints	11-inch form
p2	0 decipoints	0-inch top margin
p3	0 decipoints	0-inch bottom margin

Example:
Set 8-inch form length, one-inch top margin, one-inch bottom margin.

Dec 27 91 53 55 54 48 59 55 50 48 59 55 50 48 114

Hex 1B 5B 35 37 36 30 3B 37 32 30 3B 37 32 30 72

BASIC CHR$(27);"[5760;720;720r";

ESC [(p1);(p2)s **MARGINS SETUP**

Sets the left and right margin in decipoints; p1 is the left margin and p2 is the right. Distances are measured from the left print reference. This command takes effect following the next line terminator (you can't set margins for the current line).

Example: Set the left margin at 0.4 inch and right margin at 6.9 inches, making a 6.5 inch print line.

Dec	27	91	50	56	56	59	52	57	54	56	115
Hex	1B	5B	32	38	38	3B	34	39	36	38	73

BASIC CHR$(27);"[288;4968s";

ESC [(p1)t **OVERSIZED FONT/BAR CODE MODE**

p1	**effect**
0	reset special modes
1	select oversized printing
3	select bar code

Oversized printing and bar codes are explained in separate chapters. Expanded printing is not supported.

Example: select expanded printing

Dec	27	91	50	116
Hex	1B	5B	32	74

BASIC CHR$(27);"[2t";

ESC [(p1)(p2);..(p22)u **SET HORIZONTAL TABS AT CERTAIN POSITIONS**

Sets up to 22 stops at one time. The value of p1, p2, etc. are in decipoints (1 inch = 720 decipoints).

Dec	27	91	55	50	48	59	50	56	56	48	117
Hex	1B	5B	37	32	30	3B	32	38	38	30	75

BASIC CHR$(27);"[720;2880u";

Sets tab stops at 1 inch and 4 inches. Existing tab stops are not cleared. Margin settings have no effect on the positions of tab stops.

ESC [(p1);(p2);..(p12)v **SET VERTICAL TABS AT SPECIFIED POSITIONS**

Sets vertical tabs at positions p1, p2, p3, etc. Up to 12 stops can be set at one time. Tab stops are measured in decipoints from the top print reference.

Example: Set tab stops at 4 and 7 inches.

Dec	27	91	50	56	56	48	59	53	48	52	48	118
Hex	1B	5B	32	38	38	30	3B	35	30	34	30	76

BASIC CHR$(27);"[2880;5040v";

ESC [(p1);(p2);<SP>{

PAPER SHEAR

If the paper shear option is installed, then note that the appropriate strap must be set in the hardware options menu in order for the paper shear to work.

Parameter p1 = 1 selects the paper shear.

Parameter p2 = 1 executes a cutting sequence: If the vertical position is not at top-of-form, then a form feed is executed. Paper is advanced to the shear position and cut. The shear position should be set from the control panel so that paper is cut precisely at the perforation.

Dec	27	91	49	59	49	32	123
Hex	1B	5B	31	3B	31	20	7B

BASIC CHR$(27);"[1;1";CHR$(32);"{";

Differences Between the Printek FM8000 Genicom ANSI Emulation and the Genicom 3840 and 3410 ANSI Mode

The following functions in the Printek FM8000 Genicom ANSI Emulation have slightly different behavior than the Genicom 3840 or 3410 ANSI mode. In most cases, these differences will not affect the direct drop in replacement by the FM8000.

ESC [(p1);(p2);...(p12)}

ANSI BAR CODES

Set Bar Code Parameters
Programs all barcode parameters. Barcode Parameters are stored in non-volatile memory, and all 12 parameters should be programmed once to ensure the desired results. Factory default is for Code 3 of 9.

Differences from Genicom 3840 and 3410:

p1 - Bar Code Style

This printer supports the following styles:

p1	Style
0	Interleaved 2 of 5
4	Code 3 of 9
13	UPC-A
16	Code 128 (subsets A, B and C)

p12 - Human Readable Font

Only the special barcode font is supported.

Software Options That Affect Barcodes

Software Options are selected under the FM8000's front panel Setup feature. These

settings are non-volatile. One of these options affects barcodes:

OPTIONS MENU Item	Description
Top of Barcode	On / Off

When enabled, the vertical position on exiting bar code mode places the text baseline for subsequent printing so the top of the next character printed will align with the top of the barcode.
When disabled, the baseline for subsequent printing is 0.1 inch below the bottom of the bar code.

ESC]6;4;(p3);(p4)ESC ** **STRAPS AND OPTIONS

Set Straps and Options
This command enables down-line control of options affecting barcodes and oversized characters. These settings are non-volatile, and can also be set via the Setup Mode at the front panel.

Differences from Genicom 3840:

Only these options are supported in this printer:

p4 = 25 (backup to top of oversized character)
p4 = 26 (backup to top of barcode)

All other equivalent options are available through the FM8000 front panel Setup Mode.

IGNORE CHARACTER

This feature is accessible through the OPTIONS MENU in the FM8000 front panel Setup Mode. This allows a single 8 bit character to be discarded as it is received. This is useful when the host application is sending an unwanted control character, for example.

To use this feature:

1) Press ON LINE to go offline.
2) Press SETUP/MENU to enter Setup mode, then press SETUP/MENU two (2) more times until the [OPTIONS MENU] is displayed.
3) Press the ITEM key three (3) times until [Ignore Character] is displayed.
4) Press the VALUE key to turn the feature [On] or [Off], in this case [On].
5) Press the ITEM key one (1) time to advance to the [Char to Ignore] display.
6) Press the VALUE or key to change the character or it's decimal value until the desired character or decimal value is shown. Characters outside of the printable range are not shown, only their decimal value. Holding the VALUE keys will make them auto repeat progressively faster.
7) When the desired character or decimal value is shown, press ON LINE to exit Setup Mode and save the results to non-volatile memory.

Obviously, this feature should not be left active unless needed.

End of Differences between Printek FM8000 and Genicom 3840/3410

ESC c **RESET**

Recalls the user format presently assigned to the current paper path.

Dec 27 99

Hex 1B 63

BASIC CHR$(27);"c";

ETX **END OF TEXT**

In serial interface, if the printer is strapped for ETX/ACK handshaking, then the host sends the ETX control code at the end of a block of data.

Dec 3

Hex 03

BASIC CHR$(3);

FF **FORM FEED**

Advances the paper to the top margin on the next form.

Dec 12

Hex 0C

BASIC CHR$(12);

HT **HORIZONTAL TAB**

Causes the current print position to move to the next tab stop. If no tabs are set, then the current position moves one space. If tab(s) are set but no tab(s) are set between the active print position and the right margin, then following characters on the line are either discarded or printed on the next line, depending on the status of auto wrap.

Dec 9

Hex 09

BASIC CHR$(9);

HTS **SET HORIZONTAL TAB STOP**

If 8-bit control code processing is enabled then

Dec 136

Hex 88

BASIC CHR$(136);

IND **INDEX**

Advances the paper to the next line. The current column is not changed, regardless of the status of auto CR on LF.

Dec 132

Hex 0C

LF **LINE FEED**

Advances the paper one line according to the spacing currently in effect.

Dec 10

Hex 0A

BASIC CHR$(107);

NEL **NEXT LINE**

The next line character advances the paper to the next line. The current column is reset to the left margin. Auto CR on LF has no effect.

Dec 133

Hex 85

PLD **PARTIAL LINE DOWN (SUBSCRIPT)**

Moves paper ½ line below the current line for subscript printing.

If 8-bit control code processing is enabled then

Dec 139

Hex 8B

BASIC CHR$(139);

PLU **SUPERSCRIPT PRINTING**

Moves paper ½ line above the current line for superscript printing.

If 8-bit control code processing is enabled then

Dec 140

Hex 8C

BASIC CHR$(140);

Example of subscript and superscript:

```
10 LPRINT “X” ;CHR$(27);”Ki”;CHR$(27);”L*Y”;
20 LPRINT CHR$(27);”Li”;CHR$(27);”K=A”
```

CAUTION: When printing the last line on a form, do not send a line feed (LF) code to move directly from superscript to subscript. The LF code will be acted upon as the bottom of form terminator.

VT **VERTICAL TAB**

Advances paper to the next vertical tab setting . If the current print position is at or beyond the last tab setting, paper advances to the top of form. If no tabs are set, then VT is processed according to the status of emulation option strap 14.

Dec 11

Hex 0B

BASIC CHR$(11);

VTS **SET VERTICAL TAB STOP**

If 8-bit control code processing is enabled then

Dec 138

Hex 8A

BASIC CHR$(138);

CONFIGURATION DOWNLOAD

Beginning with Firmware Version 20, it is no longer necessary to enter Remote Setup Mode from the printer's front panel setup menus, although this method still functions the same as in earlier versions. A new feature in Version 20 is Remote Activation of the Remote Setup Mode. This is accomplished by sending the sequence <**ESC>< ESC><;> (Hex 1B 1B 3B)** to the printer while it is online. This sequence is available in any emulation. Once received, the sequence will place the printer in Remote Setup Mode as described in the manual. A configuration file can now (and *must* now) be sent to the printer.

For convenience, the escape sequence can be the FIRST THREE CHARACTERS in the configuration file itself.

Another convenient method when using the Printek 100-base-T LAN interface is to program one of the logical printers in the Axis interface as the 'remote setup' printer. To do this, select a logical printer from the Axis print server setup web page and enter **1B 1B 3B** as the 'print before job' string (see the Axis manual, or contact Printek service). Now, send configuration files to this logical printer to automatically activate Remote Setup Mode. It would be wise at the server to NOT share this logical printer to users on the network other than the system administrator who will be setting up the printers.

If a configuration file should contain an error, the printer will halt with an error message. This cannot be recovered from remotely, and the printer power must be turned off to recover. As a result, it is a good idea to test configuration files on a locally available printer before sending them to remote printers!

NEW CONFIGURATION COMMANDS

Beginning with Version 20 Firmware:

Front Panel Language:

[OPTIONS]
UserLanguage=English,French,German

This affects only the front panel display, the printed menus and the configuration print-out.

Beginning with Version 21 Firmware:

Remote Cut Adjust:

[Form0] ... [Form9]
CutAdjustUp=0.0000 ... 0.2986
CutAdjustDown=0.0000 ... 0.2986

To understand cut adjust, the commands refer to moving the paper, not the cut.
For example: to eliminate a 0.1" flap on the BOTTOM of the form, send the command
CutAdjustDown=0.1000

Resolution of the cut adjust is actually 0.00347", so the resulting values stored in the setup menus may vary slightly from the numbers entered via remote setup.
For example:

CutAdjustUp=0.2000 will result in the value +0.2013" to appear in the front panel setup menu.
The numeric format must be followed exactly. Do not omit the leading zero or decimal point, and there must be four digits to the right of the decimal point.

Genicom 3840 Emulation and Genicom 3410 Emulation

[ParallelInterface]
and / or
[SerialInterface]
and / or
[LanInterface]
Emulation=Genicom_3840
or
Emulation=Genicom_3410

Return to Top of Barcode (Genicom 3840 and 3410 Emulation)

[OPTIONS]
TopofBarcode=off/on

When enabled, the vertical position on exiting bar code mode places the text baseline for subsequent printing so the top of the next character printed will align with the top of the barcode.
When disabled, the baseline for subsequent printing is 0.1 inch below the bottom of the bar code.

Return to Top of Oversized Characters (Genicom 3840 and 3410 Emulation)

[OPTIONS]
TopofOversized=off/on

When enabled, the vertical position on exiting oversized mode places the text baseline for subsequent printing so the top of the next character printed will align with the top of the oversized character cell.
When disabled, the paper advances 1/8 inch on exiting oversized mode.

Ignore Character

[OPTIONS]
IgnoreCharacter=off/on
ChartoIgnore=0...255

This allows a single 8 bit character to be discarded as it is received. This is useful when the host application is sending an unwanted control character, for example.

Form Feed after Imager Operation

[IMAGER/IMAGERPLUSINTERFACE]
FFAfterImager=no/yes

When enabled, Imager or Imager Plus print jobs are automatically followed by a form feed command.